

WHAT IS CLAIMED IS:

1. A power supply adapted to slide into an equipment rack, the power supply comprising:

a housing with an interior, wherein the interior of the housing is adapted to house electronic circuits for the power supply;

at least one connector on a back end of the housing, where the connector electrically couples the power supply to the equipment rack via electrical contacts, where the electrical contacts include at least pre-charge contacts and regular power contacts; and

a mechanical interlock arrangement coupled to the power supply having at least a first state and a second state, wherein the mechanical interlock arrangement permits partial insertion of the power supply into the equipment rack in the first state such that the pre-charge contacts have electrical continuity with corresponding contacts in the equipment rack and interferes with full insertion such that the regular power contacts do not have electrical continuity with corresponding contacts in the equipment rack, and where the mechanical interlock arrangement permits full insertion of the power supply into the equipment rack in the second state such that the regular power contacts can have electrical continuity with corresponding contacts in the equipment rack.

2. The power supply as defined in Claim 1, wherein the pre-charge contacts and the regular power contacts extend from the power supply by substantially the same amount, and where the corresponding contacts in the equipment rack for pre-charge contacts extend out farther than the corresponding contacts in the equipment rack for regular power contacts.

3. The power supply as defined in Claim 1, wherein the pre-charge contacts extend from the power supply by a larger amount than the regular power contacts.

4. The power supply as defined in Claim 1, wherein the power supply is configured to slide into an opening of the equipment rack, where the mechanical interlock arrangement is further configured to couple with at least one opening defined in a bottom surface of the opening.

5. The power supply as defined in Claim 1, wherein the power supply further comprises a handle configured to pivot between a first position and a second position,

wherein movement of the handle controls the mechanical interlock arrangement such that a first position of the handle corresponds to the first state of the mechanical interlock arrangement and a second position of the handle corresponds to the second state of the mechanical interlock arrangement.

6. The power supply as defined in Claim 5, wherein the power supply further defines a space around a portion of the handle when the handle is in the second position, where the defined space is adapted to permit a user to grab the handle.

7. The power supply as defined in Claim 1, further comprising a bezel disposed at the front side of the housing, where the mechanical interlock arrangement is coupled to the bezel.

8. The power supply as defined in Claim 1, wherein the mechanical interlock arrangement further comprises a movable cam, where the cam is adapted to assume a first position in response to the first state of the mechanical interlock arrangement and is further adapted to assume a second position in response to the second state of the mechanical interlock arrangement, where in the first position, the cam is configured to interfere with full insertion of the power supply into the equipment rack and permit only partial insertion, and where in the second position, the cam is configured to permit full insertion of the power supply into the equipment rack.

9. The power supply as defined in Claim 8, wherein the cam is further configured to contact a front surface of the equipment rack.

10. The power supply as defined in Claim 9, wherein the cam is further configured to push against the front surface of the equipment rack when the mechanical interlock arrangement transitions from the second state to the first state such that the power supply is at least partially ejected from the equipment rack.

11. The power supply as defined in Claim 1, wherein the mechanical interlock arrangement further comprises a hook adapted to hold the power supply in an inserted position when the mechanical interlock arrangement is in the second state.

12. The power supply as defined in Claim 11, wherein the hook is further configured to retract from a bottom surface of the power supply when the mechanical interlock is in the first state, and where the hook is configured to extend from the bottom surface of the power supply when the mechanical interlock is in the second state.

13. The power supply as defined in Claim 11, wherein the hook is further configured to engage with an opening defined in a bottom surface of an opening in the power supply rack, where the hook is further configured to move from a first position to a second position when the mechanical interlock arrangement transitions from the first state to the second state such that the power supply is forcibly inserted into the opening.

14. The power supply as defined in Claim 1, wherein the mechanical interlock arrangement further comprises a fastener that when fastened is adapted to maintain the mechanical interlock arrangement in the second position such that the power supply cannot be removed from the equipment rack.

15. The power supply as defined in Claim 1, wherein the mechanical interlock arrangement further comprises a latch having a latched state and an unlatched state, where in the latched state, the latch maintains the mechanical interlock arrangement in the first state, and where in an unlatched state, the mechanical interlock arrangement can transition from the first state to the second state, and where the latch automatically engages the latched state when the mechanical interlock arrangement transitions from the second state to the first state.

16. The power supply as defined in Claim 1, wherein sides of the housing further comprise tongues adapted to fit into corresponding grooves in side walls of openings in the equipment rack such that the tongues provide retention of the power supply in a vertical direction when the power supply is mounted in the equipment rack.

17. A handle for a plug-in power supply, the handle comprising:

- a first arm with a proximal end and a distal end, the first arm defining a bore between the proximal end and the distal end, where the handle couples to the power supply through the bore, where the handle is adapted to pivot about the bore;

- a grasping portion coupled to the proximal end of the first arm;

- a cam coupled to the distal end of the first arm, where the cam is adapted to permit partial insertion but prevent full insertion of the plug-in power supply when the handle is pivoted to a first position and to permit full insertion of the plug-in power supply when the handle is pivoted to a second position; and

- a hook coupled to the distal end of the first arm, where the hook is adapted to hold the power supply in an inserted position when the handle is pivoted to the second position.

18. The handle as defined in Claim 17, further comprising a second arm substantially symmetrical to the first arm, wherein the grasping portion is disposed between the proximal end of the first arm and a proximal end of the second arm.

19. The handle as defined in Claim 17, wherein the cam is further adapted to lever against a surface to eject the power supply out of an inserted position when the handle is pivoted from the second position to the first position.

20. The handle as defined in Claim 17, where the power supply has a front side and a back side, where the power supply is adapted to plug in with the back side, where the handle is mounted to the front side of the power supply, wherein the hook is further configured to not extend beyond a bottom surface of the power supply when the handle is pivoted to the first position, and wherein the hook is configured to extend beyond the bottom surface of the power supply when the handle is pivoted to the second position.